

Docket No. AUS920030601US1

**CLAIMS:**

What is claimed is:

1. A method of logically partitioning a plurality of resources of a single channel adapter for use in a system area network, wherein said single channel adapter is shared by different partitions, comprising:

assigning a first one of said plurality of resources to a first partition;

assigning a second one of said plurality of resources to a second partition; and

enforcing partitioning of said plurality of resources by permitting access to said first one of said plurality of resources by said first partition and permitting access to said second one of said plurality of resources by said second partition.

2. The method according to claim 1, further comprising the steps of:

enforcing partitioning of said plurality of resources by permitting access to said first one of said plurality of resources only by said first partition and permitting access to said second one of said plurality of resources only by said second partition.

3. The method according to claim 1, further comprising the steps of:

determining a partition to which one of said plurality of resources is assigned utilizing a partition

Docket No. AUS920030601US1

identifier that is stored within said one of said plurality of resources.

4. The method according to claim 1, further comprising the steps of:

enforcing partitioning of said plurality of resources utilizing a hardware register included within each one of said plurality of resources.

5. The method according to claim 1, further comprising the steps of:

attempting, by said second one of said plurality of resources, to access said first one of said plurality of resources;

determining whether said first and second ones of said plurality of resources are assigned to the same partition by determining whether said second partition and said first partition are the same partition;

in response to a determination that said second partition and said first partition are the same partition, permitting said access of said first one of said plurality of resources by said second one of said plurality of resources; and

in response to a determination that said second partition and said first partition are different partitions, prohibiting said access of said first one of said plurality of resources by said second one of said plurality of resources.

Docket No. AUS920030601US1

6. The method according to claim 5, further comprising the steps of:

in response to a determination that said second partition and said first partition are different partitions, reporting an error.

7. The method according to claim 1, further comprising the steps of:

requesting, by an operating system, one of said plurality of resources of a particular type;

selecting, by a hypervisor, a particular one of said plurality of resources that is said particular type;

determining a partition to which said operating system is assigned;

storing a partition identifier that identifies said partition in a hardware register within said particular one of said plurality of resources; and

using said partition identifier that is stored within said hardware register to enforce partitioning of said plurality of resources.

8. The method according to claim 7, further comprising the steps of:

permitting only said hypervisor to alter contents of said hardware register.

9. The method according to claim 1, further comprising the steps of:

Docket No. AUS920030601US1

permitting software to set arbitrary relationships between ones of said plurality of resources after said ones of said plurality of resources are partitioned.

10. The method according to claim 1, further comprising the steps of:

enforcing said partitioning using hardware within said channel adapter.

11. A system of logically partitioning a plurality of resources of a single channel adapter for use in a system area network, wherein said single channel adapter is shared by different partitions, comprising:

a first one of said plurality of resources assigned to a first partition;

a second one of said plurality of resources assigned to a second partition; and

said channel adapter enforcing partitioning of said plurality of resources by permitting access to said first one of said plurality of resources by said first partition and permitting access to said second one of said plurality of resources by said second partition.

12. The system according to claim 11, further comprising:

said channel adapter enforcing partitioning of said plurality of resources by permitting access to said first one of said plurality of resources only by said first partition and permitting access to said second one of

Docket No. AUS920030601US1

said plurality of resources only by said second partition.

13. The system according to claim 11, further comprising:

said channel adapter determining a partition to which one of said plurality of resources is assigned utilizing a partition identifier that is stored within said one of said plurality of resources.

14. The system according to claim 11, further comprising:

said channel adapter enforcing partitioning of said plurality of resources utilizing a hardware register included within each one of said plurality of resources.

15. The system according to claim 11, further comprising:

said second one of said plurality of resources attempting to access said first one of said plurality of resources;

said channel adapter determining whether said first and second ones of said plurality of resources are assigned to the same partition by determining whether said second partition and said first partition are the same partition;

in response to a determination that said second partition and said first partition are the same partition, said channel adapter permitting said access of

Docket No. AUS920030601US1

said first one of said plurality of resources by said second one of said plurality of resources; and

in response to a determination that said second partition and said first partition are different partitions, said channel adapter prohibiting said access of said first one of said plurality of resources by said second one of said plurality of resources.

16. The system according to claim 15, further comprising:

in response to a determination that said second partition and said first partition are different partitions, said channel adapter reporting an error.

17. The system according to claim 11, further comprising:

an operating system requesting one of said plurality of resources of a particular type;

a hypervisor selecting a particular one of said plurality of resources that is said particular type;

said channel adapter determining a partition to which said operating system is assigned;

said hypervisor storing a partition identifier that identifies said partition in a hardware register within said particular one of said plurality of resources; and

said channel adapter using said partition identifier that is stored within said hardware register to enforce partitioning of said plurality of resources.

Docket No. AUS920030601US1

18. The system according to claim 17, further comprising:

said channel adapter permitting only said hypervisor to alter contents of said hardware register.

19. The system according to claim 11, further comprising:

said channel adapter permitting software to set arbitrary relationships between ones of said plurality of resources after said ones of said plurality of resources are partitioned.

20. The system according to claim 11, further comprising:

said channel adapter enforcing said partitioning using hardware within said channel adapter.